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| EXAMINER |
|---|
| BERNSHTEYN, MICHAEL |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1796 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/539,865 | HUSEMANN ET AL. | |
| | Examiner | Art Unit | |
| | MICHAEL M. BERNSHTEYN | 1796 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *26 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. This Office Action follows a response filed on June 26, 2009. Claims 1, 5, and 9 have been amended; no claims have been cancelled or added.

2. In view of the amendment(s) and remarks objection of claim 5, the rejection of claims 1-13 under 35 U.S.C. 112, 2nd paragraph, the rejection of claims 1-11 under 35 U.S.C. 102(b) as being anticipated by Baus et al. (U. S. Patent 4,501,845), and the rejection of claims 12-13 under 35 U.S.C. 103(a) as being unpatentable over Baus et al. (U. S. Patent 4,501,845) in view of Williams et al. (U. S. 4,810,523) have been withdrawn.

3. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

4. Claims 1-13 are pending.

### *Claim Rejections - 35 USC § 102*

5. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

### *Claim Rejections - 35 USC § 103*

6. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

7. Claims 1, 3, 4, 6, 7, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Brahm et al. (U. S. Patent 6,001,931).

With regard to the limitations of claims 1 and 3, Brahm discloses that a preparation of the **polyacrylate** component b) which is essential is preferably carried out by a multistage, preferably a **two-stage process** in a reaction vessel. Polymerization is carried out in the individual stages by the well-known injection process. When two process stages are employed, the polymers obtained have a **bimodal molecular weight distribution**. The average molecular weights of the copolymers synthesized in the individual stages can be adjusted by the choice of polymerization temperature, by the initiator/monomer concentration and by substances which serve as radical transferring agents. Preferably only the polymerization temperature and/or the initiator/monomer concentration are varied. It is particularly preferred to vary both parameters at the same time. In the first stage, a comonomer mixture and an initiator mixture are added to an **organic solvent** (col. 3, line 54 through col. 4, line 2).

The polyacrylate resins of component b), which is an essential component have molecular weights ($M_n$, determined by gel permeation chromatography using polystyrene as standard) of 1000 to 100,000, preferably 1000 to 30,000. An at least **bimodal molecular weight distribution** is essential. The gel permeation chromatogram has at least two maximums whose molar masses (determined with reference to a scale based on polystyrene standard) preferably differ from one another by a factor of at least 1.3, more preferably at least 1.5 (col. 3, lines 22-32).

With regard to the limitations of claim 4, Brahm exemplifies that the acrylate resin has a maximum of 12,000 and a shoulder at 25,000 while the average molecular weight

($M_n$) of the polyacrylate is 3,400 (Example 1), or the acrylate resin has a maximum of 12,000 and another sub-maximum at 27,000 while the average molecular weight ($M_n$) of the polyacrylate is 3,600 (Example 2); thus the polydispersity of the polyacrylates is within the claimed range, e.g. greater than 6.

With regard to the limitations of claim 6, Brahm discloses that the concentration of initiator or initiator mixture may be **the same or different** in the two stages of the process. For the preparation of the copolymer having a higher average molecular weight it is preferred to use Ness initiator, most preferably less than half the quantity used for the preparation of the copolymer having a lower average molecular weight (col. 4, lines 42-47).

With regard to the limitations of claim 7, Brahm discloses that Additional auxiliary agents serving as transferring agents may be used for **regulating the molecular weight**, for example, **mercaptan** compositions (col. 4, lines 48-50).

With regard to the limitations of claim 9, Brahm discloses that the **acrylate resin** may also be prepared in more than two stages, in which case copolymers having a **polymodal molecular weight distribution** are obtained. Several monomer mixtures are then polymerized in one reaction vessel at differing temperatures and/or **differing concentrations of initiator** (col. 6, lines 47).

With regard to the limitations of claim 11, Brahm discloses that the polyacrylate may be mixed with the auxiliary agents and additives conventionally used in polyurethane lacquer technology. These include levelling agents based on cellulose esters; oligoalkyl acrylates; pigments and fillers; viscosity controlling additives such as

bentonites and silicic acid esters; matting agents such as silica, aluminium silicates and high molecular weight waxes, etc. (col. 7, lines 22-28).

8. Claims 2, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brahm et al. (U. S. Patent 6,001,931) as applied to claims 1, 3, 4, 6, 7, 9 and 11 above and further in view of Williams et al. (U. S. 4,810,523.

The disclosure of Brahm's reference resided in § 7 is incorporated herein by reference.

With regard to the limitations of claim 2, Brahm does not disclose that a total conversion of all at least two-phases is greater than 97%.

Williams discloses that in general, it is desirable to reach the conversions of 95% or greater and preferably to conversions of 99.5% or higher (col. 10, lines 27-30).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to reach the conversion of greater than 97% as taught by Williams in the process for preparing a polyacrylates of Brahm having an at least bimodal molecular weight distribution with reasonable expectation of success because this is particular important in the production of pressure sensitive adhesives having very low levels of residual monomer (US'523, col. 10, lines 36-40), and thus to arrive at the subject matter of instant claim 2.

With regard to the limitations of claims 12 and 13, Brahm does not disclose a pressure-sensitive adhesive comprising the polyacrylate and an adhesive tape comprising a pressure-sensitive adhesive on one or both sides of a carrier film.

Williams discloses a production of acrylate-based pressure-sensitive adhesives by polymerization which is initiated via exposure of monomers to ionizing radiation. The invention further relates to the production of such adhesives in a low-solvent or solventless form suitable for hot melt application (col. 1, lines 9-15). The polymerization reaction may be carried out at a first dose rate for a period of time and then the dose rate changed for the remainder of the polymerization in order to produce an essentially bimodal molecular weight distribution. The polyacrylate solution is coated onto a substrate, e.g., a backing or webbing such as tape or label stock. The volatile solvent is then evaporated, thereby leaving a nearly solvent-free layer of adhesive. The practical manufacture of pressure-sensitive adhesive products such as tapes, labels and others also often requires the use of prime and/or release coatings or inclusion of a release coated interlayer(col. 2, lines 54-61).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use Brahm's polyacrylates as a pressure-sensitive adhesive which can be applied on one or both sides of a carrier film to obtain the adhesive tape as taught by Williams because these polyacrylates are substantially identically being obtained using substantially identical monomers, chain transfer agents, initiators, bimodal molecular weight distribution, etc., and thus to arrive at the subject matter of instant claims 12 and 13.

9. Claims 5, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brahm et al. (U. S. Patent 6,001,931) as applied to claims 1, 3, 4, 6, 7, 9 and 11 above and further in view of Baus et al. (U. S. Patent 6,242,518).

The disclosure of Brahm's reference resided in § 7 is incorporated herein by reference.

With regard to the limitations of claim 5, Brahm does not disclose that the molar ratio of initiator to monomer in the first phase is less than 0.005.

Baus discloses that the molar ratio of initiator to monomer in the first phase is less than 0.005, which is within the claimed range (Example 1, col. 12, lines 47-53).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the molar ratio of initiator to monomer in the first phase in the claimed range as taught by Baus in the process for preparing a polyacrylates of Brahm having an at least bimodal molecular weight distribution with reasonable expectation of success because such molar ratio of initiator was used for the preparation of the polymers having an at least bimodal molecular weight distribution (US'845, col. 12, lines 47-53), and thus to arrive at the subject matter of instant claim 5.

With regard to the limitations of claim 8, Brahm does not disclose that the regulator is added no earlier than after one hour's polymerization time but no later than two hours before the end of polymerization.

Baus discloses that after 1274 g of mixture A and 46 g of solution B have been added to the reaction flask over a 75 minute period, the additions are discontinued. After a 5 minute hold period at $82^0$ -$84^0$C, 5 g of 3-mercaptopropionic acid (3-MPA) are gradually added to the remaining mixture A and the simultaneous gradual addition of mixture A and solution B to the reaction flask is resumed (Example 1, col. 12, line 64 through col. 13, line 3). Therefore the regulator (3-MPA) was added no earlier than after

one hour's polymerization time (75 min + 5 min), but no later than two hours before the end of polymerization, which fully correspond the limitations of claim 8.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add the regulator no earlier than after one hour's polymerization time but no later than two hours before the end of polymerization as taught by Baus in the process for preparing a polyacrylates of Brahm having an at least bimodal molecular weight distribution with reasonable expectation of success because such step of adding of the regulator was used for the preparation of the polymers having an at least bimodal molecular weight distribution (US'845, Example 1, col. 12, line 64 through col. 13, line 3), and thus to arrive at the subject matter of instant claim 8.

With regard to the limitations of claim 10, Brahm does not disclose that the olefinically unsaturated monomers containing functional groups are selected from the group consisting of maleic anhydride, vinyl acetate, acrylamides, and double-bond-functionalized photoinitiators containing functional groups.

Baus discloses that acrylic copolymers are preferred, but the invention may also be applied to the preparation of other polymers of addition polymerized unsaturated monomers at least predominantly composed of a, β-monoethylenically unsaturated monomers. Examples are polyvinyl acetate and a copolymer of ethylene and vinyl acetate, optionally with small amounts of other monomers such as hydroxyethyl, hydroxypropyl acrylate and methacrylate, N-methylol acrylamide, **acrylarnide**, acrylic acid, methacrylic acid, or itaconic acid, and up to 20% of another optional copolymerizable monomer (col. 3, lines 55-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the olefinically unsaturated monomers containing functional groups are selected from the group consisting of maleic anhydride, vinyl acetate, acrylamides, and double-bond-functionalized photoinitiators containing functional groups as taught by Baus in the process for preparing a polyacrylates of Brahm having an at least bimodal molecular weight distribution because such components are need to provide specific adhesion to a wide variety of substrates and especially to those of hydrophilic or metallic character, and as a catalyst to cause curing of an aminoplast component, when used (US'845, col. 3, lines 17-21), and thus to arrive at the subject matter of instant claim 10.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

## *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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